CLAIMS:

The invention claimed is:

1. A method of depositing a silicon dioxide comprising layer in the fabrication of integrated circuitry, comprising:

flowing an aluminum containing organic precursor to a chamber containing a semiconductor substrate effective to deposit an aluminum comprising layer over the substrate;

flowing an alkoxysilanol to the substrate comprising the aluminum comprising layer within the chamber effective to deposit a silicon dioxide comprising layer over the substrate; and

providing at least one halogen within the chamber during at least one of the aluminum containing organic precursor flowing and the alkoxysilanol flowing under conditions effective to reduce rate of the deposit of the silicon dioxide comprising layer over the substrate than would otherwise occur under identical conditions but for providing the at least one halogen.

2. The method of claim 1 wherein the aluminum containing organic precursor comprises a methyl aluminum.

3. The method of claim 1 wherein the aluminum comprising layer comprises an aluminum compound.

4. The method of claim 3 wherein the aluminum compound comprises a methyl aluminum.

5. The method of claim 3 wherein the aluminum compound comprises an aluminum oxide.

6. The method of claim 3 wherein the aluminum compound comprises a methyl aluminum oxide.

7. The method of claim 1 wherein the aluminum comprising layer is no more than 3 monolayers thick.

8. The method of claim 1 wherein the alkoxysilanol comprises tristertbutoxysilanol.

9. The method of claim 1 wherein the alkoxysilanol comprises tristertpentoxysilanol.

10. The method of claim 1 wherein the halogen is provided during the alkoxysilanol flowing.

11. The method of claim 1 wherein the halogen is provided by flowing a halogen containing precursor to the chamber while flowing the alkoxysilanol.

12. The method of claim 1 wherein the halogen is provided from deposited material on the substrate which contains the halogen.

13. The method of claim 1 wherein the silicon dioxide comprising layer is formed in a blanketing manner on the substrate.

14. The method of claim 1 wherein the silicon dioxide comprising layer is selectively formed on some areas of the substrate versus other areas of the substrate.

15. The method of claim 1 wherein said flowing of alkoxysilanol is continuous.

16. The method of claim 1 wherein said flowing of alkoxysilanol is continuous at a substantially constant rate.

17. The method of claim 1 wherein said flowing of alkoxysilanol is pulsed.

18. The method of claim 1 wherein the halogen comprises fluorine.

19. The method of claim 1 wherein the halogen comprises chlorine.

20. The method of claim 1 wherein the halogen comprises bromine.

21. The method of claim 1 wherein the halogen comprises iodine.

22. A method of depositing a silicon dioxide comprising layer in the fabrication of integrated circuitry, comprising:

providing within a chamber a semiconductor substrate having an exposed outer first surface comprising at least one halogen and an exposed outer second surface effectively void of any halogen;

flowing an aluminum containing organic precursor to the chamber effective to deposit an aluminum comprising layer over the substrate; and

flowing an alkoxysilanol to the substrate comprising the aluminum comprising layer within the chamber effective to selectively deposit a silicon dioxide comprising layer over the outer second surface as compared to the outer first surface.

23. The method of claim 22 wherein the exposed outer second surface is totally void of any halogen.

24. The method of claim 22 wherein the exposed outer first surface comprises a nitride.

25. The method of claim 24 wherein the exposed outer first surface comprises tantalum nitride.

26. The method of claim 22 wherein the selective deposit is at a ratio of at least 5:1.

27. The method of claim 22 wherein the selective deposit is at a ratio of at least 10:1.

28. The method of claim 22 wherein the selective deposit is at a ratio of at least 50:1.

29. The method of claim 22 wherein the selective deposit forms some of the silicon dioxide comprising layer over the outer first surface; and

after the selective deposit, removing the silicon dioxide comprising layer from over the outer first surface and repeating the alkoxysilanol flowing.

30. The method of claim 29 comprising after the selective deposit, repeating the aluminum containing organic precursor flowing then the alkoxysilanol flowing.

31. The method of claim 22 wherein the selective deposit is at a ratio of at least 99:1 for at least the first 100 Angstroms of thickness of the silicon dioxide comprising layer.

32. The method of claim 22 wherein the selective deposit is at a ratio of at least 99:1 for at least the first 250 Angstroms of thickness of the silicon dioxide comprising layer.

33. The method of claim 22 wherein the selective deposit is self limiting to silicon dioxide comprising deposition after completing said depositing the aluminum comprising layer.

34. The method of claim 22 wherein the selective deposit is self limiting to silicon dioxide comprising deposition after completing said depositing the layer comprising the aluminum comprising layer, and further comprising repeating said flowing the aluminum containing organic precursor and said flowing the alkoxysilanol at least once.

35. The method of claim 22 wherein the aluminum compound comprises a methyl aluminum oxide.

36. The method of claim 22 wherein the aluminum comprising layer is no more than 3 monolayers thick.

37. The method of claim 22 wherein the alkoxysilanol comprises tristertbutoxysilanol.

38. The method of claim 22 wherein the alkoxysilanol comprises tristertpentoxysilanol.

39. The method of claim 22 wherein the aluminum comprising layer is deposited over both the exposed outer first surface and the exposed outer second surface.

40. The method of claim 22 wherein the halogen comprises fluorine.

41. The method of claim 22 wherein the halogen comprises chlorine.

42. The method of claim 22 wherein the halogen comprises bromine.

43. The method of claim 22 wherein the halogen comprises iodine.

44. A method of forming trench isolation in the fabrication of integrated circuitry, comprising:

forming a masking layer comprising at least one halogen over a semiconductor substrate;

etching isolation trenches through the halogen comprising masking layer into semiconductive material of the semiconductor substrate, and providing the isolation trenches to comprise a deposition surface which is effectively void of any halogen;

after etching the isolation trenches, flowing an aluminum containing organic precursor to the substrate effective to deposit an aluminum comprising layer over the substrate; and

after depositing the aluminum comprising layer, flowing an alkoxysilanol to the substrate effective to selectively deposit a silicon dioxide comprising layer within the isolation trenches as compared to over the halogen comprising masking layer.

45. The method of claim 44 wherein the aluminum comprising layer is deposited within the isolation trenches and over the halogen comprising masking layer.

46. The method of claim 44 wherein the selective deposit is at a ratio of at least 10:1.

47. The method of claim 44 wherein the selective deposit forms some of the silicon dioxide comprising layer over the halogen comprising masking layer; and

after the selective deposit, removing the silicon dioxide comprising layer from over the halogen comprising masking layer and repeating the alkoxysilanol flowing.

48. The method of claim 47 comprising after the selective deposit, repeating the aluminum containing organic precursor flowing then the alkoxysilanol flowing.

49. The method of claim 44 wherein the selective deposit is at a ratio of at least 99:1 for at least the first 100 Angstroms of thickness of the silicon dioxide comprising layer.

50. The method of claim 44 wherein the alkoxysilanol comprises tristertbutoxysilanol.

51. The method of claim 44 wherein the alkoxysilanol comprises tristertpentoxysilanol.

52. The method of claim 44 wherein the halogen comprises fluorine.

53. The method of claim 44 wherein the halogen comprises chlorine.

54. The method of claim 44 wherein the halogen comprises bromine.

55. The method of claim 44 wherein the halogen comprises iodine.

56. A method of depositing a silicon dioxide comprising layer in the fabrication of integrated circuitry, comprising:

flowing an aluminum containing organic precursor to a chamber containing a semiconductor substrate effective to deposit an aluminum comprising layer over the substrate;

flowing an alkoxysilanol to the substrate comprising the aluminum comprising layer within the chamber effective to deposit a silicon dioxide comprising layer over the substrate; and

at least one of the aluminum containing organic precursor flowing and the alkoxysilanol flowing including flowing of at least one halogen containing material from externally of the chamber to the chamber.

57. The method of claim 56 wherein the halogen containing material flowing is with the alkoxysilanol flowing.

58. The method of claim 56 wherein the halogen containing material flowing is with the aluminum containing organic precursor flowing.

59. The method of claim 56 wherein the silicon dioxide comprising layer comprises aluminum oxide, and further comprising controlling quantity of aluminum oxide in the silicon dioxide comprising layer with the halogen containing material flowing.

60. The method of claim 56 wherein the halogen containing material flowing impacts rate of growth of the silicon dioxide comprising layer, and further comprising controlling the rate of growth with the halogen containing material flowing.

61. The method of claim 56 wherein the silicon dioxide comprising layer is formed in a blanketing manner on the substrate.

62. The method of claim 56 wherein the silicon dioxide comprising layer is selectively formed on some areas of the substrate versus other areas of the substrate.

63. The method of claim 56 wherein the halogen containing material is plasma activated.

64. The method of claim 56 wherein the halogen containing material comprises X_2, where "X" is a halogen.

65. The method of claim 56 wherein the halogen containing material comprises HX, where "X" is a halogen.

66. The method of claim 56 wherein the halogen containing material comprises a halocarbon.

67. The method of claim 56 wherein the halogen containing material comprises a hydrohalocarbon.

68. The method of claim 56 wherein the alkoxysilanol comprises tristertbutoxysilanol.

69. The method of claim 68 wherein the halogen containing material flowing is with the alkoxysilanol flowing.

70. The method of claim 56 wherein the alkoxysilanol comprises tristertpentoxysilanol.

71. The method of claim 70 wherein the halogen containing material flowing is with the alkoxysilanol flowing.

72. The method of claim 56 wherein the halogen comprises fluorine.

73. The method of claim 56 wherein the halogen comprises chlorine.

74. The method of claim 56 wherein the halogen comprises bromine.

75. The method of claim 56 wherein the halogen comprises iodine.

76. A method of depositing a silicon dioxide comprising layer in the fabrication of integrated circuitry, comprising:

flowing an aluminum containing organic precursor to a chamber containing a first semiconductor substrate effective to deposit an aluminum comprising layer over the first substrate;

flowing an alkoxysilanol to the first substrate comprising the aluminum comprising layer within the chamber effective to deposit a silicon dioxide comprising layer over the first substrate;

after the deposit, cleaning the chamber with at least one halogen containing species;

after the cleaning, providing at least one of activated oxygen, activated nitrogen, and activated hydrogen within the chamber effective to react with residual halogen present within the chamber from the cleaning;

after the providing, flowing an aluminum containing organic precursor to the chamber containing a second semiconductor substrate effective to deposit an aluminum comprising layer over the second substrate;

flowing an alkoxysilanol to the second substrate comprising the aluminum comprising layer within the chamber effective to deposit a silicon dioxide comprising layer over the second substrate; and

the reacting of the at least one of activated oxygen, the activated nitrogen, and the activated hydrogen being effective to increase growth rate of the silicon dioxide comprising layer over the second substrate than would

otherwise occur under identical conditions in the absence of such prior reacting.

77. The method of claim 76 comprising providing activated oxygen within the chamber effective to react with residual halogen present within the chamber from the cleaning.

78. The method of claim 77 wherein the oxygen is plasma activated.

79. The method of claim 77 wherein the oxygen comprises O_3.

80. The method of claim 76 comprising providing activated nitrogen within the chamber effective to react with residual halogen present within the chamber from the cleaning.

81. The method of claim 80 wherein the nitrogen is plasma activated.

82. The method of claim 76 comprising providing activated hydrogen within the chamber effective to react with residual halogen present within the chamber from the cleaning.

83. The method of claim 82 wherein the hydrogen is plasma activated.

84. The method of claim 82 wherein the hydrogen comprises H_2.

85. The method of claim 76 wherein the providing at least one of activated oxygen, activated nitrogen and activated hydrogen within the chamber is effective to react with residual halogen to form a gaseous product which is exhausted from the chamber prior to flowing an aluminum containing organic precursor to the chamber containing the second semiconductor substrate.

86. The method of claim 76 wherein the aluminum containing organic precursor flowed to the chamber containing the first semiconductor substrate is the same as the aluminum containing organic precursor flowed to the chamber containing the second semiconductor substrate.

87. The method of claim 76 wherein the alkoxysilanol flowed to the first semiconductor substrate is the same as the alkoxysilanol flowed to the second semiconductor substrate.

88. The method of claim 76 wherein,

the aluminum containing organic precursor flowed to the chamber containing the first semiconductor substrate is the same as the aluminum containing organic precursor flowed to the chamber containing the second semiconductor substrate; and

the alkoxysilanol flowed to the first semiconductor substrate is the same as the alkoxysilanol flowed to the second semiconductor substrate.

89. The method of claim 76 wherein the first substrate is removed from the chamber prior to the cleaning.

90. The method of claim 76 wherein the second substrate is not in the chamber during the providing.

91. The method of claim 76 wherein,

the first substrate is removed from the chamber prior to the cleaning; and

the second substrate is not in the chamber during the providing.

92. The method of claim 76 wherein the halogen containing species comprises NX_3 , where "X" is a halogen.

93. The method of claim 76 wherein the halogen containing species comprises NF_3.

94. The method of claim 76 wherein the aluminum containing organic precursor flowed to the chamber containing the first semiconductor substrate comprises a methyl aluminum, and the aluminum containing organic precursor flowed to the chamber containing the second semiconductor substrate comprises a methyl aluminum.

95. The method of claim 76 wherein the alkoxysilanol flowed to the first semiconductor substrate comprises tristertbutoxysilanol, and the alkoxysilanol flowed to the second semiconductor substrate comprises tristertbutoxysilanol.

96. The method of claim 76 wherein the halogen comprises fluorine.

97. The method of claim 76 wherein the halogen comprises chlorine.

98. The method of claim 76 wherein the halogen comprises bromine.

99. The method of claim 76 wherein the halogen comprises iodine.